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10/519,858	12/29/2004	Hitoshi Hayashi	5259-000043/NP	9302

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EXAMINER	
LU, ZHIYU	

ART UNIT	PAPER NUMBER
2618	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/519,858	HAYASHI ET AL.	
	Examiner	Art Unit	
	ZHIYU LU	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 May 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4 and 5* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4 and 5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 05/27/2009 have been fully considered but they are not persuasive.

Regarding rejection on claim 1, applicants argued that "SYN" of Ng and Kem is expressed by a series of second waveforms without using the third waveform.

However, the Examiner does not agree. Applicant's argument is based on whether considering the "SYN" representation as a waveform. According to applicant's invention, the third waveform has a length of time mT while the first and second waveforms have a length of time T. It shows that in recognizing a signal to be a specific waveform, applicant's method is bounded by signal pattern recognition rather than bounded by clocked time length. Ng already teaches that a third waveform is used for detection of logic "SYN". Kem teaches using eight consecutive zeros for logic "SYN", which is recognized by detection of a specific signal pattern. So, the logic representation of Ng and Kem is considered as a waveform by itself. Though applicant's tries to claim a third waveform different a first waveform and a second waveform, a recognizable repetition of either a first waveform or a second waveform fits the claim limitation of "... with 50% duty ration is in a high level state at a starting point, is in a low level state at an end point and rise only at a total of m positions of T/2+nT (n=0..., m-1). Yet, applicant's claim does not limit the third waveform from being a waveform repetition of either the first or second waveform.

Thus, the rejections are proper and maintained.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-2 and 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ng (US2003/0011474) in view of Kem et al. (US Patent#5058141) and Muirhead (US2002/0030597).

Regarding claim 1, Ng teaches a communication method for a noncontact TF ID system (Fig. 1) comprising:

communicating a data sequence having a first waveform which corresponds to one of codes "0" or "1" and which has a length of time T (Logic '1' of Fig. 8);

communicating a data sequence having a second waveform which corresponds to one of codes "0" or "1" opposite to the first waveform and which has a length of time T (Logic '0' of Fig. 8); and

communicating a data sequence having a third waveform (logic 'SYN' of Fig. 8).

But, Ng does not expressly disclose the third waveform which corresponds to m (m is a natural number equal to or greater than 2) codes, that are the same as the codes of the second waveform and where the third waveform has a length of time mT, wherein the first waveform with 50% duty ratio is in a low level state at a starting point, is in a high level state at an end point and rise only at a position of T/2, the second waveform with 50% duty ratio is in a high level state at a

starting point, is in a low level state at an end point and rises only at a position of T/2, and the third waveform with 50% duty ratio is in a high level state at a starting point, is in a low level state at an end point and rises only at a total of m positions of T/2+nT (n=0, …, m=1).

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the waveform of Ng into the waveform as specified in this claim by one's design preference.

Kem et al. teach having eight consecutive logic zeros representing synchronization, which would have been obvious to one of ordinary skill in the art to recognize logic SYN of Ng as consecutive zeroes.

Muirhead teach RFID device may use different coding waveform algorithm to reduce data recovery errors, bandwidth problems, synchronization limitations, and other system design and const considerations (paragraph 0071)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the third waveform of Ng into the code succession representation taught by Kem et al. and Muirhead as specified in claim by one's design preference for representation in signal waveform coding.

Regarding claim 2, Ng, Kem et al., and Muirhead teach a communication method for a noncontact RF ID system as explained in response to claim 1 above.

Regarding claim 4, Ng, Kem et al., and Muirhead teach the limitation of claim 1.

Ng, Kem et al., and Muirhead do not expressly disclose in the case in which the state transition is rising, the first waveform is a waveform that maintains a low level in a negative time direction for T/2 from the point in time that the waveform first rises, which is a center point of the waveform, and maintains a high level state for T/2 in a positive time direction from this center point;

the second waveform is a waveform that maintains a high level state in the positive time direction for t1 from a point in time that the waveform first rises, which is the center point of the waveform, maintains a low level state for time t2 until an end point of the waveform, maintains a low level state in the negative time direction for time t1 from the center point of the waveform, and maintains a high level state for time t2 until a starting point of the waveform (here, t denotes time, T denotes one cycle of the first and second waveforms, and t1 + t2 = T/2); and

the third waveform is a C(2n) waveform which, in the case in which m=2n, maintains a high level state in the positive time direction for t6 from the point in time that the waveform first rises; maintains a low level state in the negative time direction for t3 from the point in time that the waveform first rises; maintains a high level state for time t4 until the starting point of the waveform; maintains a high level state in the positive time direction for t(2 (n - k) + 6) from the point in time that the waveform rises for the (n + 1 – k)th time; maintains a low level state for t (2 (n - k) + 3) in the negative time direction from the point in time that the waveform rises for the (n + 1 – k)th time; maintains a high level state in the positive time direction for T/2 from the point in time that the waveform rises for the nth time; maintains a low level state in the negative time direction for t(2 (n - 1) + 3) from the point in time that the waveform rises for the nth time; maintains a high level state in the positive time direction for t(2 (n - 1) +3) from the point in time

that the waveform rises for the (n + l)th time; maintains a low level state in the negative time direction for T/2 from the point in time that the waveform rises for the (n + l)th time; maintains a high level state in the positive time direction for t(2 (n - k) + 3) from the point in time that the waveform rises for the (n + k)th time; maintains a low level state in the negative time direction for t (2 (n - k) + 6) from the point in time that the waveform rises for the (n + k)th time; maintains a low level state in the negative time direction for t6 from the point in time that the waveform rises the last time; maintains a high level state in the positive time direction for t3 from the point in time that the waveform rises the last time; and maintains a low level state for time t4 until an end point of the waveform, where n and k are natural numbers; n >= k >= 1; t is time; T is one cycle of the first and second waveforms; and t3 + t4 = T/2; t(2 (n - k) + 5) + t(2 (n - k) + 6) = T (when n and k >= 2); and

in the case in which m = 2n + 1, the third waveform is a C(2n + 1) waveform that maintains a high level state in the positive time direction for t6 from the point in time that the waveform first rises; maintains a low level state in the negative time direction for t3 from the point in time that the waveform first rises; maintains a high level state for t4 from the starting point of the waveform; maintains a high level state in the positive time direction for t(2 (n - k) + 6) from the point in time that the waveform rises for the (n + 1 – k)th time; maintains a low level state in the negative time direction for t(2 (n - k) + 3) from the point in time that the waveform rises for the (n + 1 – k)th time; maintains a high level state in the positive time direction for t(2 (n - 1) + 5) from the point in time that the waveform rises for the (n + 1)+ time; maintains a low level state in the negative time direction for t(2 (n - 1) + 5) from the point in time that the waveform rises for the (n + 1)th time; maintains a high level state in the positive time direction

for t(2 (n - k) + 3) from the point in time that the waveform rises for the (n + 1 + k)th time; maintains a low level state in the negative time direction for t(2 (n - k) + 6) from the point in time that the waveform rises for the (n + 1 + k)th time; maintains a low level state in the negative time direction for t6 from the point in time that the waveform rises the last time; maintains a high level state in the positive time direction for time t3 from the point in time that the waveform rises the last time; and maintains a low level state for t4 until the end point of the waveform; (where n and k are natural numbers, n >= k >= 1, t is time, T is one cycle of the first and second waveforms, t3 + t4 = T/2, and t(2 (n - k) + 5) + t (2 (n - k) + 6) = T).

However, Muirhead teaches different coding waveform algorithm may be used in RFID by design preference (paragraph 0071). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the first waveform, the second waveform, and the third waveform of Ng, Kem et al., and Muirhead into as specified in this claim by design preference.

Regarding claim 5, Ng, Kem et al., and Muirhead teach the limitation of claim 1.

Ng, Kem et al., and Muirhead do not expressly disclose in the case in which the state transition is a falling state transition, the first waveform is an inverted waveform that maintains a low level in a negative time direction for T/2 from the point in time that the waveform first rises, which is a center point of the waveform, and maintains a high level state for T/2 in the positive time direction from this center point;

the second waveform is an inverted waveform that maintains a high level state in the positive time direction for t1 from the point in time that the waveform first rises, which is the

center point of the waveform, maintains a low level state for time t2 until the end point of the waveform, maintains a low level state in the negative time direction for time t1 from the center point of the waveform, and maintains a high level state for time t2 until the starting point of the waveform (here, t denotes time, T denotes one cycle of the first and second waveforms, and t1 + t2 = T/2); and

the third waveform is an inverted C(2n) waveform which, in the case in which m=2n, maintains a high level state in a positive time direction for t6 from the point in time that the waveform first rises; maintains a low level state in the negative time direction for t3 from the point in time that the waveform first rises; maintains a high level state for time t4 until the starting point of the waveform; maintains a high level state in the positive time direction for t(2 (n - k) + 6) from the point in time that the waveform rises for the (n + 1 – k)th time; maintains a low level state for t (2 (n - k) + 3) in the negative time direction from the point in time that the waveform rises for the (n + 1 – k)th time; maintains a high level state in the positive time direction for T/2 from the point in time that the waveform rises for the nth time; maintains a low level state in the negative time direction for t(2 (n - 1) + 3) from the point in time that the waveform rises for the nth time; maintains a high level state in the positive time direction for t(2 (n - 1) +3) from the point in time that the waveform rises for the (n + 1)th time; maintains a low level state in the negative time direction for T/2 from the point in time that the waveform rises for the (n + 1)th time; maintains a high level state in the positive time direction for t(2 (n - k) + 3) from the point in time that the waveform rises for the (n + k)th time; maintains a low level state in the negative time direction for t (2 (n - k) + 6) from the point in time that the waveform rises for the (n + k)th time; maintains a low level state in the negative time direction for t6 from

the point in time that the waveform rises the last time; maintains a high level state in the positive time direction for t3 from the point in time that the waveform rises the last time; and maintains a low level state for time t4 until the end point of the waveform, where n and k are natural numbers', n >= k >= 1 ; t is time; T is one cycle of the first and second waveforms; and t3 + t4 = T/2; t(2 (n - k) + 5) + t(2 (n - k) + 6) = T (when n and k >= 2); and in the case in which m = 2n + 1, the third waveform is an inverted C(2n + 1) waveform that maintains a high level state in the positive time direction for t6 from the point in time that the waveform first rises; maintains a low level state in the negative time direction for t3 from the point in time that the waveform first rises; maintains a high level state for t4 from the starting point of the waveform; maintains a high level state in the positive time direction for t(2 (n - k) + 6) from the point in time that the waveform rises for the (n + 1 – k)th time; maintains a low level state in the negative time direction for t(2 (n - k) + 3) from the point in time that the waveform rises for the (n + 1 – k)th time; maintains a high level state in the positive time direction for t(2 (n - 1) + 5) from the point in time that the waveform rises for the (n + 1)th time; maintains a low level state in the negative time direction for t(2 (n - 1) + 5) from the point in time that the waveform rises for the (n + 1)t.11 time; maintains a high level state in the positive time direction for t(2 (n - k) + 3) from the point in time that the waveform rises for the (n + 1 + k)th time; maintains a low level state in the negative time direction for t(2 (n - k) + 6) from the point in time that the waveform rises for the (n + 1 + k)th time; maintains a low level state in the negative time direction for t6 from the point in time that the waveform rises the last time; maintains a high level state in the positive time direction for time t3 from the point in time that the waveform rises the last time; and maintains a low level state for t4 until the end point of the waveform; (where n and k are natural numbers, n

>= k >= 1, t is time, T is one cycle of the first and second waveforms, t3 + t4 = T/2, and t(2 (n - k) + 5) + t (2 (n - k) + 6) = T).

However, Muirhead teaches different coding waveform algorithm may be used in RFID by design preference (paragraph 0071). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the first waveform, the second waveform, and the third waveform of Ng, Kem et al., and Muirhead into as specified in this claim by design preference.

Conclusion

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ZHIYU LU whose telephone number is (571)272-2837. The examiner can normally be reached on Weekdays: 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc Nguyen can be reached on (571) 272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Zhiyu Lu
Examiner
Art Unit 2618

/Zhiyu Lu/
Examiner, Art Unit 2618
August 3, 2009

/Duc Nguyen/
Supervisory Patent Examiner, Art Unit 2618